

From the INTERNATIONAL BUREAU

# PCT

NOTIFICATION CONCERNING  
 TRANSMITTAL OF COPY OF INTERNATIONAL  
 PRELIMINARY REPORT ON PATENTABILITY  
 (CHAPTER I OF THE PATENT COOPERATION  
 TREATY)

(PCT Rule 44bis.1(c))

To:

THOMPSON, Sandra  
 Bingham McCutchen LLP  
 Three Embarcadero Center  
 San Francisco, CA 94111-4067  
 ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year)  
 04 August 2005 (04.08.2005)

Applicant's or agent's file reference  
 7240126001 - 3224000

IMPORTANT NOTICE

International application No.  
 PCT/US2004/001798

International filing date (day/month/year)  
 21 January 2004 (21.01.2004)

Priority date (day/month/year)  
 22 January 2003 (22.01.2003)

Applicant  
 HONEYWELL INTERNATIONAL INC et al

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Authorized officer

Philippe Becamel

724012-6001

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 7240126001	<b>FOR FURTHER ACTION</b> See item 4 below	
International application No. PCT/US2004/001798	International filing date ( <i>day/month/year</i> ) 21 January 2004 (21.01.2004)	Priority date ( <i>day/month/year</i> ) 22 January 2003 (22.01.2003) ]
International Patent Classification (IPC) or national classification and IPC 7 C23C 14/34, H01F 7/06, 27/06		
Applicant HONEYWELL INTERNATIONAL INC		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |                                                                                                                                                                 |
|-------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report                                                                                                                                             |
| <input type="checkbox"/>            | Box No. II   | Priority                                                                                                                                                        |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability                                                                |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention                                                                                                                                      |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited                                                                                                                                         |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application                                                                                                                |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application                                                                                                           |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 740 14 35	Date of issuance of this report 22 July 2005 (22.07.2005)
	Authorized officer  <b>Philippe Becamel</b>  Telephone No. +41 22 338 70 90

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:  
SANDRA THOMPSON  
THREE EMBARCADERO CENTER  
SAN FRANCISCO, CA 94111-4067

## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference <b>7240126001</b>		Date of mailing (day/month/year) <b>26 OCT 2004</b>
International application No. <b>PCT/US04/01798</b>		FOR FURTHER ACTION See paragraph 2 below
International filing date (day/month/year) <b>21 January 2004 (21.01.2004)</b>	Priority date (day/month/year) <b>22 January 2003 (22.01.2003)</b>	
International Patent Classification (IPC) or both national classification and IPC <b>IPC(7): C23C 14/34; H01F 7/06, 27/06 and US Cl.: 204/298.06; 29/606; 336/65</b>		
Applicant <b>HONEYWELL INTERNATIONAL INC</b>		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I      Basis of the opinion
- ☐ Box No. II      Priority
- ☐ Box No. III      Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV      Lack of unity of invention
- ☒ Box No. V      Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI      Certain documents cited
- ☐ Box No. VII      Certain defects in the international application
- ☐ Box No. VIII      Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Steven H VerSteeg Telephone No. (571) 272-1300
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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/01798

**Box No. I Basis of this opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US04/01798

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>4, 8, 9, 18, 19, 23, 27, 28, 37, and 38</u>	YES
	Claims <u>1-3, 5-7, 10-17, 20-22, 24-26, and 29-36</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-38</u>	NO
Industrial applicability (IA)	Claims <u>1-38</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Please See Continuation Sheet

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US04/01798

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

**V. 2. Citations and Explanations:**

Claims 1-3, 5-7, 10-17, 20-22, 24-26, and 29-36 lack novelty under PCT Article 33(2) as being anticipated by US 2002/0047116 A1 to Pavate et al. (Pavate).

For claim 1, Applicant requires a coil assembly comprising at least one coil and at least one boss coupled to the at least one coil wherein the at least one boss comprises at least two support sections.

For claim 20, Applicant requires a method of producing a coil assembly comprising providing a coil; providing at least one boss having at least two support sections; and coupling the at least one boss to the coil.

Pavate discloses a coil assembly (Figure 1B) comprising a coil (102) with at least one boss (126a-e, 128a-e, and 129a-e combined) that has at least two support structures (the part connected to the coil and the part connected to the shield). The boss is coupled to the coil (Figure 1B).

For claims 2 and 21, Applicant requires the coil to comprise a metal. For claims 3 and 22, Applicant requires the metal to be a transition metal. Pavate discloses the coil to be copper or aluminum [0025].

For claims 5 and 24, Applicant requires the at least one boss to comprise more than 3 bosses. For claims 6 and 25, Applicant requires the at least one boss to comprise more than 5 bosses. Figure 1B shows at least 7 bosses (126a-e, 128a-e, 129 a-e, 105a, and 105b).

For claims 7 and 26, Applicant requires the at least one boss to comprise the same material as the coil. Pavate discloses the limitation [0025].

For claims 10 and 29, Applicant requires the boss to be molded to the coil as one continuous piece of material. Figure 1B suggests that the boss and coil are one piece molded together.

For claims 11 and 30, Applicant requires the at least one boss to comprise a first support section and a second support section with different diameters. The boss pin (128a-e) appears to have different diameters (Figure 1B).

For claims 12 and 31, Applicant requires an ion depositing apparatus comprising the coil assembly. For claims 13 and 32, Applicant requires a sputtering chamber assembly with the ion depositing apparatus. For claims 14 and 33, Applicant requires a sputtering chamber assembly with the coil assembly. Pavate discloses the coil assembly in a sputtering apparatus [0022], which is an ion depositing apparatus.

For claims 15 and 34, Applicant requires the assembly to comprise a heat transfer device. For claims 16 and 35, Applicant requires the heat transfer device to comprise at least the boss. For claims 17 and 36, Applicant requires the heat transfer device to comprise the boss and the coil. The boss and coil of Pavate should function in the exact same manner as that claimed by Applicant.

Claims 4 and 23 lack an inventive step under PCT Article 33(3) as being obvious over US 2002/0047116 A1 to Pavate et al. (Pavate) in view of US 2002/0144901 A1 to Nulman et al. (Nulman).

For claims 4 and 23, Applicant requires the coil to be titanium or tantalum.

Pavate is described above, but discloses the coil to be copper or aluminum.

Nulman discloses that the coil can be titanium [0010] when making a semiconductor device that requires a titanium layer [0002].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Pavate to utilize titanium as the material for the coil because of the desire to deposit a titanium layer for a semiconductor device.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US04/01798

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Claims 8, 9, 27, and 28 lack an inventive step under PCT Article 33(3) as being obvious over US 2002/0047116 A1 to Pavate et al. (Pavate) in view of US 2001/0007302 A1 to Hong.

For claims 8 and 27, Applicant requires the at least one boss to be coupled to the coil through a welded joint. For claims 9 and 28, Applicant requires the welded joint to be formed by laser welding or e-beam welding.

Pavate is described above, but does not describe the coil and boss to be welded together.

Hong discloses that the coil should be connected to anything by e-beam welding the parts together [0023].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Pavate to e-beam weld the boss and the coil together because of the knowledge that e-beam welding is the conventional method to join the boss and coil together.

Claims 18, 19, 37, and 38 lack an inventive step under PCT Article 33(3) as being obvious over US 2002/0047116 A1 to Pavate et al. (Pavate) in view of US 2001/0019016 A1 to Subramani et al. (Subramani).

For claims 18 and 37, Applicant requires the coil to have a thickness of less than about 0.2 inches. For claims 19 and 38, Applicant requires the coil thickness to be less than about 0.13 inches.

Pavate is described above, but does not disclose the thickness of the coil.

Subramani discloses that in a sputtering chamber, it is conventional to have a sputtering coil with a thickness of 1/16 inches [0051].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Pavate to have a coil thickness of 1/16 inches because of the desire to utilize a commonly utilized coil thickness.